Congressman Space assists in securing $2.24 million for alternative energy project
Additional $1.6 million awarded for heat exchangers

Athens, OH (Nov. 14, 2008) – Ohio University announced today that two energy-related research projects will receive almost $4 million in federal funding. University researchers will partner with the U.S. Department of Defense to further develop an alternative to diesel and continue work with several aerospace industry leaders on the next generation of heat exchangers for airplanes and spacecraft.

The projects were announced today by U.S. Rep. Charlie Wilson and university officials.

“I am so proud to have played a role in securing two major federal appropriations that will be spent right here at Ohio University,” Wilson said.

The university's Electrochemical Engineering Research Laboratory will receive $2.24 million to work with the U.S. Army Engineer Research & Development Center-Construction Engineering Research Laboratory (ERDC-CERL) to provide quieter back-up power for training facilities and soldier camps. Under the “Silent Camp Initiative,” power is supplied via low-noise, low-impact methods instead of noisy, inefficient diesel generators.

Researchers in the university’s Russ College of Engineering and Technology already have developed two patent-pending technologies that can process wastewater into hydrogen, nitrogen and clean water using renewable energy, low-energy consumption ammonia and urea wastewater electrolyzers. The hydrogen produced through these processes can be combined with a fuel cell to provide power, thus offering a safe, convenient alternative to diesel generators. The urea electrolysis technology will allow the direct conversion of urine/wastewater to hydrogen.

“Our patent-pending technology is the only process that allows direct conversion of urine to hydrogen and ammonia,” Associate Professor of Chemical and Biomolecular Engineering Gerardine Botte said. “From a defense standpoint, urine is a ‘fuel’ that is carried by soldiers everywhere. This funding will enable us to implement processes that will contribute to the

solution of our energy needs and realize our dream of 'pee to power.'"

Wilson said he was proud to have worked with U.S. Rep Zack Space to secure funding for a project that will help meet the military's needs.

"This technology provides quiet, clean and low-impact electricity – and can be used by the military to improve stealth operations, make military base camps more self-sufficient and protect the lives of our U.S. soldiers," he said.

Space agreed, saying the project is good for the military and Ohio University as well. "This cutting-edge technology will enable our soldiers to operate more effectively and better protect them from our enemies, he said. "Once again, Ohio University is providing cutting-edge technology and applications that are making our country a better, stronger place."

In the second appropriation, researchers in the Russ College's Center for Advanced Materials Processing, GrafTech International, the Ohio Aerospace Institute and Air Force Research Laboratories will receive $1.6 million on top of an identical amount initially awarded in November 2007 to launch the project.

The heat exchangers will increase efficiency and decrease emissions in military planes because they will be made from graphite foam that weighs 40 percent less than the metallic ones now in use. This means significant fuel savings, additional payload space and better heat transfer efficiency.

According to Moss Professor of Mechanical Engineering Khairul Alam, the researcher in charge of the university's contribution to the project, the technology eventually could be adapted for commercial use in jetliners and even home heating systems and refrigerators.

Alam said the endeavor is a unique opportunity for the Russ College graduate students working with him. "The graphite heat exchanger trains students for employment in an advancing field, and because the foam is made from graphite, the project has potential for utilization of coal – which is important for Southeastern Ohio."

Wilson is encouraged by additional money-saving aspects of the research.

“I’m not a scientist, but I know why this is important,” he said. “Because carbon foam can withstand harsh environments, this change could double the life cycle of our military aircraft, and that means lower overall maintenance costs. If you ask me, that’s money well-invested.”

Ohio University President Roderick J. McDavis said the two projects are examples of the important technologies university researchers are developing that will have a major impact on the state, nation and world.

“This collaboration speaks to the belief that public universities should be engines of innovation,” he said. “The groundbreaking work our researchers are undertaking has the potential to make an important difference in our world.”